

**PROCESS FOR MAKING A HIGH VOLTAGE NPN BIPOLAR  
DEVICE WITH IMPROVED AC PERFORMANCE**

**ABSTRACT OF THE DISCLOSURE**

5 A method of improving the speed of a heterojunction bipolar device without negatively  
impacting ruggedness of the device is provided. This method includes the steps of  
providing a structure that includes at least a bipolar device region, the bipolar device  
region comprising at least a collector region formed over a sub-collector region; and  
forming an n-type dopant region within the collector region, wherein the n-type dopant  
region has a vertical width that is less than about 2000 Å and a peak concentration that is  
10 greater than a peak concentration of the collector region. The present invention also  
provides a method of fabricating a heterojunction bipolar transistor device as well as the  
device itself which can be used in various applications including as a component for a  
mobile phone, a component of a personal digital assistant and other like applications  
wherein speed and ruggedness are required.